

### **Remarks**

The Final Office Action mailed on June 29, 2010 has been reviewed carefully and the application amended in a sincere effort to place the application in condition for allowance. Accordingly, reconsideration of the claims, and allowance of the same, are respectfully requested on the basis of the following remarks.

Upon entry of this Amendment, Claims 1, 3-9, 11, 14-16, and 19-21 will be pending in the application. Claims 2, 10, 12-13, and 17-18 have been cancelled. Because Claims 13 and 18 have been cancelled, the rejection of these claims are now moot.

Claim 1 has been amended only to address the 35 U.S.C. 112 issues that were raised by the Examiner in the Final Office Action. Claim 13 has been cancelled in order to address the Examiner's rejection under 35 U.S.C. 112 as well. The Applicants, therefore, respectfully request entry of this amendment since these amendments were made only to address the 35 U.S.C. 112 issues raised by the Examiner and, thus, places the application in better condition for appeal.

### **Rejection of Claims 1, 3-7, 11, 15-16, and 18-21 under 35 U.S.C. 112**

The Examiner has rejected Claims 1, 3-7, 11, 15-16, and 18-21 under 35 U.S.C. 112, first paragraph, for allegedly failing to comply with the written description requirement.

In light of the amendments made to Claim 1, the Applicants submit that the rejection of this claim, and the claims that depend therefrom, is now moot.

### **Rejection of Claims 1, 3-7, 9, 11, 13-16, and 18-21 under 35 U.S.C. 103(a)**

The Examiner has rejected Claims 1, 3-7, 9, 11, 13-16, and 18-21 under 35 U.S.C. 103(a) for allegedly being unpatentable over U.S. Pat. No. 5,389,696 (hereinafter, "Dempsey") in view of U.S. Pat. No. 5,500,176 (hereinafter, "Parks") or U.S. Pat. Nos. 5,670,553 (hereinafter, "Mackey I") or 5,993,528 (hereinafter, "Mackey II") and further in view of U.S. Pat. Nos. 5,852,107 (hereinafter, "Gillis I") and 5,916,939 (hereinafter, "Gillis II").

Claim 1 of the present invention recites that the poly(dimethylsiloxane)-polyoxyethylene surfactant contributes more than 0.006 moles of EO per 100g of the polymer derived from the reaction system. While the Examiner concedes that Dempsey, the primary reference, does not disclose and/or suggest this feature, the Examiner

contends that one skilled in the art would modify Dempsey to include more L-6980 surfactant since mold release properties have been linked to polysiloxane surfactants and, therefore, one skilled in the art would add more surfactant to improve mold release properties thereby increasing the EO content contributed by the surfactant (see page 5 of the Final Office Action).

In order to support this assertion, the Examiner relies on Gillis I & II to show that there is a synergistic effect when a polysiloxane surfactant is used in combination with a fatty acid ester compound (see page 5 of the Office Action). While Gillis I & II do show the use of a polysiloxane surfactant in combination with an amine salt of a carboxylic acid (see Abstract), there is no teaching and/or suggestion that increasing the amount of polysiloxane surfactant would have any affect on the ability of the internal mold release system to function more efficiently. In fact, as the Examiner has conceded, that both Gillis I & II state that the improved release activity is most likely due to the carboxylic acid salt compound reacting with the polyisocyanate of the system and forming an insoluble amide (see page 6 of the Final Office Action as well as column 3, lines 5-12, of Gillis I & II) and does not mention the role of the polysiloxane surfactant. Despite Gillis I & II disclosing the use of a polysiloxane surfactant, the Applicants submit that the reference does not recognize that increasing the amount of polysiloxane surfactant is a result-effective variable. Accordingly, the Applicants submit that there is no rationale that would lead one skilled in the art to modify Dempsey as proposed by the Examiner.

Moreover, while Dempsey and Mackey I & II do disclose the use of a poly(dimethylsiloxane) surfactant in various examples disclosed therein, the results of those examples do not teach and/or suggest that adding more poly(dimethylsiloxane) surfactant would improve the mold release properties of the mixtures.

For example, the Examiner has noted that Dempsey discloses the use of L-6980, siloxane surfactant (see page 3 of the Final Office Action and Example 1 of Dempsey). Dempsey states that L-6980 is used in the Base B components which is later added with various IMR agents as well as an isocyanate compound that is referred to as "the A component" (see column 9, line 43, to column 11, line 54). Table 1 shows the results of various experiments involving the mixtures containing L-6980. In each of these experiments, L-6980 is used at a consistent level. The results are summarized below:

Table 1:

Run	Releases
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1	6
2	12
3	7
4	15
5	8
6	1
7	18
8	40 + (w/o fail)

As can be seen from the table above, use of L-6980 at a constant level still yielded inconsistent and highly differentiated results. For example, in Run 6, the mixture was only successful in allowing the part to release one time while in Run 8, the mixture was successful in allowing the part to release over forty times. Therefore, while Dempsey does in fact disclose the use of a siloxane surfactant, it did not recognize the result-effective variable of the compound. Accordingly, a broad assertion that it would have been obvious to one skilled in the art to increase the amount of polysiloxane surfactant in a mixture in order to improve the mold release properties of the mixture is misplaced since even use of the surfactant at constant levels yielded inconsistent results.

Mackey I & II also disclose the use of L-6980. As with Dempsey, the results of Mackey I & II are inconsistent with the proposition that adding more polysiloxane surfactant to a mixture would automatically improve the mold release properties of the mixture. For example, Table 2 of Mackey I & II clearly shows that the formulation that contained L-6980 (Formulation 11) actually performed worse than the formulations that did not contain L-6980:

Table 2:

Formulation No.	No. of releases
11 (with L-6980)	27/32 <sup>1</sup>
7 (no L-6980)	40+
8 (no L-6980)	40+
9	40+

(no L-6980)	
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<sup>1</sup>: Represents duplicate runs on this system.

As can be seen from the table above, Formulation 11 (which contained the polysiloxane surfactant) did not perform as well as the other formulations that did not contain the polysiloxane surfactant.

Table 3 also discloses that use of L-6980 in the mixture does not necessarily mean that the mixture exhibited improved mold release properties:

Table 3:

Formulation No.	No. of releases
12 (with L-6980)	40+
13 (with L-6980)	18/19*
18 (with L-6980)	14/11 <sup>2</sup>
14 (no L-6980)	40+
15 (no L-6980)	40+
16 (no L-6980)	34
17 (no L-6980)	27

\*: Applicants are assuming that duplicate runs were conducted on this formulation.

<sup>2</sup>: Represents duplicate runs on this system.

While Formulation 12 did exhibit mold release properties similar to the other formulations that did not contain the L-6980 surfactant, Formulations 13 and 18 performed worse than their counterparts that did not contain the polysiloxane surfactant. It should also be noted that Formulation 12 did not do any better than the formulations that did not contain L-6980. Rather, it performed just as well as those formulations. Therefore, the Applications submit that the assertion of adding more polysiloxane

surfactant to the system would yield improved release properties as proposed by the Examiner cannot be derived from the table above.

Table 4 of Mackey I & II also shows the inconsistent and highly differentiated results that are derived from various mixtures containing L-6980.

Table 4:

Formulation No.	No. of releases
19	40+
20	25
21	19
22	40+

As with Dempsey, Table 4 shows the highly variable results that can occur even when the level of L-6980 is constant. In Formulations 19-22, the amount of L-6980 surfactant was held at 1.50, yet the number of releases varied from 19 to 40+. The Applicants, therefore, submit that a broad assertion stating that it would have been obvious to increase the amount of polysiloxane surfactant in a system in order to improve the mold release properties of the mixture is misplaced.

It is noted that it appears that Parks merely discloses the use of water-soluble polyether siloxane compounds as foam stabilizers (see column 7, lines 43-48). That is, Parks is silent as to whether such a compound would aid or have a role in the mold releasing properties of the composition. The Applicants, however, are assuming that the Examiner is using Parks only to establish that the internal mold release composition of the present invention was allegedly known to those skilled in the art.

In light of the forgoing paragraphs, the Applicants submit that none of the references, alone or in combination, recognized the polysiloxane surfactants as a result-effective variable and, therefore, submit that it would not have been obvious to one skilled in the art to merely add more polysiloxane surfactant to the system disclosed in Dempsey since there is no evidence to support that adding more surfactant would necessarily lead to an increase in the mold release properties of the mixture. Accordingly, the Applicants submit that the Examiner has not set forth a proper *prima facie* case of obviousness and that Claim 1, and the claims that depend directly or indirectly therefrom, are in condition for allowance.

Assertion of Expectation of Similar Results

With regard to the Examiner's assertion that it would be reasonable to expect that the mixtures of Example 1 of Dempsey would display the same properties as to that of the present invention since an EO mole content of 0.0053 is so close to the claimed range of more than 0.006 moles, the Applicants submit that Example 1 does not clearly support this assertion (see pages 3 and 4 of the Final Office Action). As can be seen from Table 1 (which uses the mixtures of Example 1), out of eight trials, only one trial (namely, Run 8) had 40+ releases. However, 40+ releases is not indicative that Dempsey would perform as well as the present invention since 40+ releases could easily mean 45 or 50 releases which are equivalent to Comparative Examples 1 and 2 that are disclosed in the present application. Moreover, the fact that the vast majority of the results (around 88%) disclosed in Example 1 of Dempsey show the number of releases as being far below that of the present invention allows one to question whether the broad assertion proposed in the Final Office Action is misplaced. Accordingly, the Applicants submit that a proper *prima facie* case of obviousness has not been set forth. The Applicants, therefore, submit that the present invention is patentable over the cited references.

### **Conclusion**

In light of the foregoing arguments, it is respectfully submitted that Claims 1, 3-9, 11, 14-16, and 19-21 are in proper form for issuance of a Notice of Allowance and such action is respectfully requested at an early date.

Respectfully Submitted,



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